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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/814,607	03/22/2001	Rick V. Murakami	9437.15	4149

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EXAMINER

MOORTHY, ARAVIND K

ART UNIT	PAPER NUMBER
2131	

DATE MAILED: 08/14/2002

Please find below and/or attached an Office communication concerning this application or proceeding.

<b>Office Action Summary</b>	<b>Application No.</b>	<b>Applicant(s)</b>
	09/814,607	MURAKAMI ET AL.
	<b>Examiner</b>	<b>Art Unit</b>
	Aravind K Moorthy	2131

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

#### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

#### Status

- 1) Responsive to communication(s) filed on \_\_\_\_\_.
- 2a) This action is FINAL.                  2b) This action is non-final.
- 3) Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

#### Disposition of Claims

- 4) Claim(s) \_\_\_\_\_ is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) Claim(s) \_\_\_\_\_ is/are allowed.
- 6) Claim(s) 1-35 is/are rejected.
- 7) Claim(s) 11 and 30 is/are objected to.
- 8) Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

#### Application Papers

- 9) The specification is objected to by the Examiner.
- 10) The drawing(s) filed on 22 March 2001 is/are: a) accepted or b) objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) The proposed drawing correction filed on \_\_\_\_\_ is: a) approved b) disapproved by the Examiner.  
If approved, corrected drawings are required in reply to this Office action.
- 12) The oath or declaration is objected to by the Examiner.

#### Priority under 35 U.S.C. §§ 119 and 120

- 13) Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) All b) Some \* c) None of:
1. Certified copies of the priority documents have been received.
  2. Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.
- 14) Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a)  The translation of the foreign language provisional application has been received.
- 15) Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

#### Attachment(s)

- |  |   |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)                                | 4) <input type="checkbox"/> Interview Summary (PTO-413) Paper No(s). _____  |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)                       | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449) Paper No(s) <u>5</u> | 6) <input type="checkbox"/> Other: _____                                    |

## DETAILED ACTION

### *1. Specification*

2. The disclosure is objected to because of the following informalities: missing serial number.

The applicant did not provide the appropriate serial number to the United States Provisional Application file June 8, 2000, titled "METHOD AND APPARATUS FOR HISTOLOGICAL AND PHYSIOLOGICAL BIOMETRIC OPERATION AND AUTHENTICATION."

Appropriate correction is required.

### *3. Drawings*

4. The drawings are objected to because drawings supplied with application do not correspond with claimed invention. A proposed drawing correction or corrected drawings are required in reply to the Office action to avoid abandonment of the application. The objection to the drawings will not be held in abeyance.

### *5. Claim Rejections - 35 USC § 112*

The following is a quotation of the first paragraph of 35 U.S.C. 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

6. Claims 1-35 are rejected under 35 U.S.C. 112, first paragraph, as containing subject matter which was not described in the specification in such a way as to enable one skilled in the art to which it pertains, or with which it is most nearly connected, to make and/or use the invention.

This is an invention for a portable biometric authentication system for measuring multiple biological traits to authenticate the use of a device or application not for use of unauthorized users. As understood by the examiner, the invention is directed to the use of the heartbeat and

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one other live biological trait. Applicant fails to mention a criterion on how to differentiate between different populations of people's heartbeat, page 11 and the first paragraph. The examiner asserts that one of ordinary skill would have to go through the entire population to find the theory behind the invention. This would cause undue experimentation. The applicant does not discuss how characteristics such as power, heat quantity, heat flux, volumetric heat release, and electrical capacities could serve as measurements of biometric traits. The examiner asserts that applicant's failure to provide details on how the particular biometric features of the use of authentication by heartbeat and other live biological traits are unique to a particular group of people or to an individual. Without such details, one skilled in the art would be required to engage in undo experimentation in order to practice or use the invention. A person of ordinary skill in the art would have to undergo clinical trials to measure and come up with a criterion to differentiate between different individuals.

The examiner asserts that the method of authentication with heartbeat is not the best method for authentication. There are many factors that affect a person's heartbeat such as stress/emotion level, amount of physical activity, time of day (heartbeat slowest in the morning), and health of individual. Also multiple individuals with the same pacemaker will all have the same heart rate. These factors make it difficult to differentiate a heartbeat between multiple individuals for authentication.

On page 12, the applicant also fails to disclose how bone density is used for authentication. Bone density tests are used to assess the health of your bones, rate of bone loss, and response to therapy. Bone density is also measured by using small amounts of radiation or

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sound waves to determine the bone density of the spine, hip, finger, wrist, or heel. The applicant does not claim either one of these methods for measuring bone density.

Any claims that are not mention specifically are rejected by the virtue of dependency.

#### ***7. Claim Rejections - 35 USC § 112***

The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

8. Regarding claim 20, the phrase "such as" renders the claim indefinite because it is unclear whether the limitations following the phrase are part of the claimed invention or whether the scope of the claim is limited to any transmission medium. See MPEP § 2173.05(d). Applicant needs to specify which type of signal is being embodied in the transmission medium.
9. Claim 33 is rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. Claim 33 recites the limitation "said computer chip" in the claim. There is insufficient antecedent basis for this limitation in the claim. There is no mention of "said computer chip" in independent claim 28. For the purposes of applying art, the examiner assumed that claim 33 is dependent on claim 32.
10. Claim 34 is rejected under 35 U.S.C. 112, second paragraph. The claim is dependent on claim 38. There are only 35 claims in application. There is insufficient antecedent basis for this limitation in the claim. Examiner has assumed this is a typographical error and depended claim 34 on claim 28 for the sake of examining. Appropriate correction is required.

Any claims that are not mention specifically are rejected by the virtue of dependency.

***11. Claim Objections***

12. Claims 11 and 30 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims. Prior art does not disclose bone density as being a method of a live internal biological identifier.

***13. Claim Rejections - 35 USC § 101***

35 U.S.C. 101 reads as follows:

Whoever invents or discovers any new and useful process, machine, manufacture, or composition of matter, or any new and useful improvement thereof, may obtain a patent therefor, subject to the conditions and requirements of this title.

14. Claims 20-27 are rejected under 35 U.S.C. 101. As discussed above, the scope of claim 20 could include any type of transmission medium such as any type of signal. Data signals without more are non-statutory, as they do not fall within any of the statutory classes listed in 35 U.S.C 101.

***15. Claim Rejections - 35 USC § 102***

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(a) the invention was known or used by others in this country, or patented or described in a printed publication in this or a foreign country, before the invention thereof by the applicant for a patent.

**16. Claims 1, 2, 8, 16, 20, 21, 26, 27, 28, 30, and 31 are rejected under 35 U.S.C. 102(b) as being anticipated by Osten et al U.S. Patent No. 5,719,950.**

As per claims 1, 2, 20, 21, 26, and 28, Osten discloses the use of a biometric system and method for biometric personal authentication. The method comprising steps of using one or

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more non-specific biological traits in combination with specific unique biological or physiological traits to authenticate an individual, see column 2 lines 13-17. Osten makes use of a fingerprint captured by a camera and used as one of two biological traits, see column 6 lines 6-32. The examiner asserts that the fingerprint corresponds to the second biological identifier.

Osten also makes use of electrodes 102, 104, and 106 to measure the pulse rate needed for an EKG signal, see column 8 lines 25-45. The examiner asserts that the EKG represents a live internal biological trait of an individual.

If the fingerprint data and the EKG data correspond to stored parameters, the user is authenticated, see column 9 line 53 to column 10 line 52.

The examiner takes note that the non-specific biological trait could be used to determine impairment, see column 2 lines 14-26. However, the examiner notes that the condition of the individual (i.e. alive, inebriated, etc.) is a parameter of authentication in the Osten system, see column 10 lines 39-49.

As per claims 8 and 27, Osten's apparatus is using a CCD camera to capture the fingerprint, see column 6 lines 20-32. The CCD camera is going to capture the image by reflecting the light off of the fingertips and capturing the image of the fingerprint on camera.

Claim 16 differs from claim 2 in that it recites a live body tissue for capturing the live internal identifier and performing the function previously inaccessible to an authorized party.

The examiner asserts that the finger used to obtain pulse signals constitutes the live body tissue and that the purpose of the Osten system is to authenticate individuals thus if there were no authentication, then no one would be authorized to use the motor vehicle or other facility or equipment, see column 3 lines 20-27.

As per claim 31, Osten disclose in column 4 line 66 to column 5 line 4 that an optional feature of the invention is to provide additional authentication using apparatus that identifies and compares more than one unique, inherently specific biometric parameters such as written signature, retinal configuration, voice recognition, or physical dimension of the individual.

**17. *Claim Rejections - 35 USC § 103***

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

- (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

**18. Claims 3, 9, 11, 12, and 22 are rejected under 35 U.S.C. 103(a) as being unpatentable over Osten et al U.S. Patent No. 5,719,950 and further in view of Steuer U.S. Patent No. 4,239,048.**

As per claim 3, Osten discloses in column 8 lines 17-45 that EKG signals are obtained by the use of electrodes attached to the fingers or thumbs. This method may be plagued by the problems of inconsistent readout, and the introduction of error from any source, such as, muscle tremor, poor sensor contact, and inappropriate use, to name a few. To improve Osten's system, the implementation of Steuer's device as an attachment overcomes those problems mentioned. In Steuer's invention, it is disclosed that the cardio tachometer is a totally self-contained unit in the form of a wristwatch or a hand-held device. The wristwatch or hand-held device can replace electrodes 102, 104 and 106. A sensor 12 may be a conventional pressure transducer or a light

emitting diode/photocell combination that measures the systolic beats of the user. See column 3 lines 40-45 in Steuer.

As per claims 9 and 12, further rejection can be made with Osten in column 4 line 66 to column 5 line 4 in which an optional feature of the invention is to provide additional authentication using apparatus that identifies and compares more than one unique, inherently specific biometric parameters such as written signature, retinal configuration, voice recognition, or physical dimension of the individual. The retinal configuration and voice recognition constitutes a second live biological identifier.

As per claim 11, Osten discloses, see column 2 line 66 to column 3 line 8, that bone structure can be one of the non-specific biometric parameters used for authentication.

**19. Claims 4, 17, and 23 are rejected under 35 U.S.C. 103(a) as being unpatentable over Osten et al U.S. Patent No. 5,719,950 as applied to claims 1, 16, and 20 respectively above, and further in view of Schiller U.S. Patent No. 4,544,267.**

Osten discloses the use of the fingerprinting as the form of authentication, for the second biological identifier, see column 6 lines 1-9. However, Osten fails to disclose the manner in which this process is conducted. In column 6 lines 32-58, Schiller discloses the use of a modulated light beam carrying relatively light zones and relatively dark zones representing the ridges and valleys of the finger. The change in light intensity absorbed by the finger is going to be translated to be the fingerprint information. The advantage of this system over Osten is that Schiller's system is highly accurate and includes a relatively inexpensive platen. This system is also insensitive to the amount of oil on the finger that may affect the image of the fingerprint. Finally, Schiller's system provides an optical scanning system that minimizes optical distortion.

**20. Claims 5-7 and 24 rejected under 35 U.S.C. 103(a) as being unpatentable over the references as applied to claims 4 and 20, respectively, above, and further in view of Merriam-Webster's Collegiate Dictionary.**

Webster's Dictionary defines portable as being capable of being carried or moved about (~TV). In column 5 lines 44-48, Osten discloses the invention as being counter top mounted. It would be obvious to say that if an object is capable of being placed on a counter that it is capable of being carried or moved about. From figure 1 of Osten, it is shown that the invention contains a computer system.

It would be obvious to weigh some quantitative features of biological features more than other features of biological identifiers. It would be obvious to consider a fingerprint over a heartbeat. An individual's fingerprint is both unique and inherently specific. A heartbeat is non-specific and not unique to an individual. As discussed with the issues with heartbeat authentication, fingerprints or any other specific and unique biometric identifier would be weighed more. See column 2 lines 54-65.

Osten discloses means for verifying physiological parameters such as blood alcohol content or levels of controlled chemical substances (e.g., legal drugs used in illegal quantities or at illegal times or illegal drugs) in the body. See column 3 lines 14-27.

**21. Claims 10 and 29 are rejected under 35 U.S.C. 103(a) as being unpatentable over Osten et al U.S. Patent No. 5,719,950 as applied to claims 9 and 28 respectively above, and further in view of Rice U.S. Patent No. 4,699,149.**

Osten discloses that the present invention is capable of doing authentication. They use other live biometrics, such as retinal configuration and voice recognition, see column 5 lines 1-4. Osten is silent, however, on how these techniques are performed. In column 2 lines 9-21, Rice discloses that the skin is transparent to the radiation that penetrates and illuminates the subcutaneous region. This reference is used to show how the illuminated light affects the subcutaneous layer of the skin.

**22. Claims 13, 15, 18, 19, 25, 32 and 34 are rejected under 35 U.S.C. 103(a) as being unpatentable over Osten et al U.S. Patent No. 5,719,950.**

As per claim 13, 18, and 32, from figure 1 of Osten, there is a computer system shown. It would be obvious to say that each block within the system represents a chip. Block 350, the accept/reject, can be used for the authentication process.

As per claim 15, it would be obvious to weigh some quantitative features of biological features more than other features of biological identifiers. It would be obvious to consider a fingerprint over a heartbeat. An individual's fingerprint is both unique and inherently specific. A heartbeat is non-specific and not unique to an individual. As discussed with the issues with heartbeat authentication, fingerprints or any other specific and unique biometric identifier would be weighed more. See column 2 lines 54-65.

**23. Claim 14 is rejected under 35 U.S.C. 103(a) as being unpatentable over Osten et al U.S. Patent No. 5,719,950 as applied to claim 13 above, and further in view of Steuer U.S. Patent No. 4,239,048.**

In column 6 lines 23-35, Steuer discloses the use of a hand-held version of the unified, self-contained cardio tachometer with digital readout. This device is convenient placement within the palm of the user. It would be obvious to make this an attachment to Osten's system so that the unit remains portable.

**24. Claim 33 is rejected under 35 U.S.C. 103(a) as being unpatentable over Osten et al U.S. Patent No. 5,719,950 as applied to claim 28 above, and further in view of Steuer U.S. Patent No. 4,239,048.**

In column 6 lines 23-35, Steuer discloses the use of a hand-held version of the unified, self-contained cardio tachometer with digital readout. This device is convenient placement within the palm of the user. In column 6 lines 50-55, the device can be operated on an integrated circuit chip. It would be obvious to incorporate the chip into a device that is portable and small so that the device may remain compact and lightweight.

**24. Claim 35 is rejected under 35 U.S.C. 103(a) as being unpatentable over Osten et al U.S. Patent No. 5,719,950 in view of Steuer U.S. Patent No. 4,239,048 and in further view of Brady U.S. Patent No. 5,892,838.**

This rejection can be done in light of the rejections done on claims 3 and 5-7.

***25. Conclusion***

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Aravind K Moorthy whose telephone number is 703-305-1373. The examiner can normally be reached on Monday-Friday, 8:00-5:30.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Gail Hayes can be reached on 703-305-9711. The fax phone numbers for the organization where this application or proceeding is assigned are 703-746-7239 for regular communications and 703-746-7238 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is 703-305-3900.

August 12, 2002



GAIL HAYES  
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